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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CALAMITA, HEATHER

ART UNIT PAPER NUMBER

1637

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/886,055		STRYER ET AL.	
	Examiner		Art Unit	
	Heather G. Calamita, Ph.D.		1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status of Application, Amendments, and/or Claims

1. New claims 23-36 are currently pending. Newly submitted claims 24, 34, 35 and 36 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: These claims are drawn to a method with odd SEQ ID NOs 1 through 511. The originally claimed invention was drawn to methods with SEQ ID NOs 55 and 56.

Since applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24, with respect to SEQ ID NOs other than 55 and 56, 34, 35 and 36 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 23-33 are currently under examination. This application contains subject matter drawn to an invention nonelected with traverse in the response filed on March 16, 2004. A complete reply to the final rejection must include cancellation of nonelected claims and subject matter or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Finally, any objections and rejections not reiterated below are hereby withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 23-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krautwurst et al. (Cell, 1998) in view of Burford et al. (US 2004/0224314).

Krautwurst teaches the method steps of claim 23.

(a) providing a representative class of n olfactory receptors or ligand-binding domains thereof (see p. 918 col. 2 paragraph 4);

(b) measuring values X_1 to X_n representative of at least one activity of the one or more odorants selected from the group consisting of binding of the one or more odorants to the ligand-binding domain of at least one of the n olfactory receptors, activating at least one of the n olfactory receptors with the one or more odorants, and blocking at least one of the n olfactory receptors with the one or more odorants (see p. 919 col. 1 and col. 2 lines 1-11); and

(c) generating a representation of sensory perception from the values X_1 to X_n ; wherein at least one of the n olfactory receptors has an amino acid sequence of (see p. 919 col. 2 last paragraph, p. 920 col. 1 and col. 2 and Figure 3).

With regard to claim 24, Krautwurst et al. teach at least one of the olfactory receptors specifically recognizes the odorant, and there are between 5 and 350 of the n olfactory receptors selected from the listed amino acid sequences (see Figure 3 and abstract). Pooled chimeric receptors are screened with 26 different odorants.

With regard to claim 25, Krautwurst et al. teach at least two different activities are measured to provide the values X_1 to X_n (see Figure 3 and legend). The response to 26 different odorants (presence and absence) is measured.

With regard to claim 26, Krautwurst et al. teach each odorant receptor is expressed in cells, and the cells expressing each odorant receptor are located at an identifiable position (see p. 918 col. 2 last paragraph, p. 920 panel A Figure 2 legend).

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With regard to claim 27, Krautwurst et al. teach at least one olfactory receptor is soluble, and binding of odorant to a ligand-binding domain of the soluble olfactory receptor is measured in solution (see p. 918 col. 1 paragraph 2). The receptors are soluble in the cell before they are translocated to the plasma membrane.

With regard to claim 28, Krautwurst et al. teach at least one olfactory receptor is in solid state, and binding of odorant to a ligand-binding domain of the solid-state olfactory receptor is measured on a substrate (see p. 919 col. 1 first full paragraph lines 7-9, p. 920 col. 2 paragraph 2, p. 921 col. 1 lines 7-9 and Figure 4 legend).

With regard to claim 29, Krautwurst et al. teach the value measured for binding is above a preset limit for specific binding to olfactory receptors (see Figure 4 and legend). The baseline calcium level is compared to the calcium levels after binding.

With regard to claims 30 and 31, Krautwurst et al. teach the value measured for activating an olfactory receptor is derived from a signal selected from the group consisting of intracellular Ca^{2+} , CAMP and IP_3 (see p. 918 col. 2 paragraph 3 lines 1-19).

With regard to claim 32, Krautwurst et al. teach the value measured for blocking an olfactory receptor is at least a reduction in binding of the odorant or activation by the odorant (see p. 919 col. 2 paragraph 2 lines 12-16). Desensitization is a reduction in activation of the signaling system when the odorant binds.

With regard to claim 33, Krautwurst et al. teach the sensory perception is generated with a neural network (see the abstract). HEK-293 cells are transfected with chimeric receptors found on neurons, therefore this meets the claim limitation.

Krautwurst et al. do not teach SEQ ID NOs 55 and 56.

Burford et al. teach SEQ ID NOs 55 and 56 (see SEQ ID NOs 27 and 66 respectively as well as the attached alignments).

It would have been prima facie obvious to utilize the method as taught by Krautwurst et al. (Cell, 1998) with the sequences as taught by Burford et al. (US 2004/0224314) since Burford et al. note “The largest subfamily of GPCRs, the olfactory receptors, are also members of the rhodopsin-like GPCR family. These receptors function by transducing odorant signals. Numerous distinct olfactory receptors are required to distinguish different odors. Each olfactory sensory neuron expresses only one type of olfactory receptor, and distinct spatial zones of neurons expressing distinct receptors are found in nasal passages. However, the expression of olfactory-like receptors is not confined to olfactory tissues. (see p. 2 paragraph 0008).” An ordinary practitioner would have been motivated to use the method as taught by Krautwurst et al. (Cell, 1998) with the sequences as taught by Burford et al. (US 2004/0224314) in order to assess the physiological functions of these receptors in the presence of a variety of odorants.

Response to Arguments

3. Applicants’ arguments filed October 7, 2005, have been fully considered but they are not persuasive.

With respect to the 103 (a) rejections, Applicants argue the Krautwurst et al. reference fails to teach or suggest the claimed invention because the reference does not teach the olfactory sequence contained in SEQ ID NO 55. This is not persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover Applicants argue Krautwurst do not teach the inventive method of representing sensory perception using the specific set of olfactory receptors recited in claim 24. This argument is not persuasive as the numerous SEQ ID NOs recited in claim 24 and further in claims 34-36

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are withdrawn as being directed to non-elected subject matter. Additionally Krautwurst teach a method using a variety of olfactory receptors.

Applicants further argue while Burford discloses SEQ ID NOs 55 and 56, Burford do not disclose that these sequences encode a human olfactory receptor. This argument is not persuasive because Burford disclose SEQ ID NOs 55 and 56, as the sequences are the same they inherently possess the same functions and characteristics. According to *In re Best* 195 USPQ 430, 1997, the court stated that, "Patent Office can require applicant to prove that prior art products do not necessarily or inherently possess characteristics of his claimed product wherein claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicant" (pp. 430). Therefore, for the aforementioned reasons the 103 (a) rejections are maintained.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Correspondence

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather G. Calamita whose telephone number is 571.272.2876 and whose e-mail address is heather.calamita@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route. The examiner can normally be reached on Monday through Thursday, 7:00 AM to 5:30 PM.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at 571.272.0782.

Papers related to this application may be faxed to Group 1637 via the PTO Fax Center using the fax number 571.273.8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to 571.272.0547.

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hgc


JEFFREY FREDMAN
PRIMARY EXAMINER
